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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,981	01/21/2004	Taku Kodama	6453P030	5988

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EXAMINER	
WANG, JIN CHENG	

ART UNIT	PAPER NUMBER
2628	

DATE MAILED: 08/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/762,981	KODAMA ET AL.	
	Examiner	Art Unit	
	Jin-Cheng Wang	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2006 and 30 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-14 and 16-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 5-14 and 16-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/2/2006 and 6/30/2006 has been entered. Claims 1, 9, 10-12 have been amended. Claims 4 and 15 have been canceled. Claims 1-3, 5-14 and 16-19 are pending in the application.

Response to Arguments

Applicant's arguments filed May 2, 2006 have been fully considered but are not found persuasive in view of the new ground(s) of rejection set forth below.

As address below, the Claims 1-3, 5-9 and 11-14 and 16-19 are unpatentable over Chui et al. U.S. Patent No. 6,904,176 (hereinafter Chui) in view of Murao U.S. Patent No. 6,141,452 (hereinafter Murao).

For example, Chui discloses or suggests, in column 6, lines 20-56, an image processing apparatus, comprising:

A size adjusting unit to, if an image is not evenly divisible into a number of fixed size regions that are equivalently sized, adjust the size of the image at a stage in an encoding process to form a size-adjusted image so that the size-adjusted image becomes evenly divisible into the

regions; and an encoding unit to encode the size-adjusted image by the regions into a codestream.

Chui discloses processing logic divides each image of different resolution into a number fixed sized tiles. When the image cannot be divided evenly, padding by 0's may be necessary as shown in Fig. 2A wherein padding by 0's adjusts the size of the image. In Fig. 2A, an image at full resolution is divided into equal sized square tiles and because the last column of tiles are not square, zeros have been added onto the right edge of the image to enable the last column of tiles to be square. The fixed sized tiles are further labeled. The processing logic encodes each tile by encoding the (I, j)th tile of the lowest resolution using JPEG as shown in Fig. 3A. The JPEG encoder encodes the tile to create compressed bitstream to be sent to the decoder. The claim recites "size adjusted image", however, notwithstanding Chui's disclosure of adjusting the size of the original image, Chui also discloses compressing bitstream. Compressing the original image at the stage of encoding adjusts the size of image. Decompressing at the stage of decoding also adjusts the size of the image.

Chui further discloses the image encoder module 3070 which include an encoder control program controlling the processing of compressing and encoding an image (See column 17, lines 5-15). Once all the tiles of an image have been transformed, compressed and encoded, the resulting encoded image data is stored as an image file wherein the image file includes header data and a sequence of image data structures (See column 18, lines 15-20). The header of the image file includes the information needed to access the various image subfiles wherein the header stores a parameter value that indicates the number of image subfiles in the file and the size of each image data structure. Each image subfile has a header and a sequence of bitstreams

wherein the header data of each base image subfile includes fields that indicate the size of the image subfile and the size of the tiles used to tile the image, the number of bitstreams encoded for the image for each tile of the image and the header information for each bitstream including the size of the bitstream (See column 18, lines 40-67 and column 19, lines 1-20).

Therefore, the encoded image as stored in the image file contains information related to the size of the tiles used to tile the image and the number of image subfiles leading to the size of the image. Chui is seen to disclose an image encoder unit or the compressing unit that performs the function of the information attaching unit to attach to the codestream (bitstream of the encoded image), the size of the tiles, the number of the image subfiles, the size of each image data structure and thus Chui discloses the claim limitation of "information related to the size of the image".

Chui thus further discloses an information attaching unit to attach, to the codestream, information related to the size of the image before the adjustment of size.

Although it is not clear whether Chui is teaches the claim limitation of "if an image is not evenly divisible into a number of fixed size regions that are equivalently sized, adjust the size of the image", Murao succinctly demonstrates the claim limitation, in Fig. 7b and 7d, column 5, lines 15-25 and column 6, lines 48-60, that, the image size adjusting unit adjusts size of the original image to the suitable size for a Wavelet transform.

Moreover, Chui discloses processing logic divides each image of different resolution into a number fixed sized tiles. When the image cannot be divided evenly, padding by 0's may be necessary as shown in Fig. 2A wherein padding by 0's adjusts the size of the image. In Fig. 2A, an image at full resolution is divided into equal sized square tiles and because the last column of

tiles are not square, zeros have been added onto the right edge of the image to enable the last column of tiles to be square. **The fixed sized tiles are further labeled.** The processing logic encodes each tile by encoding the (I, j)th tile of the lowest resolution using JPEG as shown in Fig. 3A. The JPEG encoder encodes the tile to create compressed bitstream to be sent to the decoder. Thus, Chui at least suggests the claim limitation "if an image is not evenly divisible into a number of fixed size regions that are equivalently sized, adjust the size of the image" because padding by 0's to the image adjusts the size of the image.

It would have been obvious to have combined the teachings of Chui and Murao to adjust the size of the original image so that the image is evenly divisible into a number of fixed size tiles. Doing so would allow the efficient compressing and restoring of the images to reduce the computing time and the amount of memory needed using the Wavelet transform and inverse Wavelet transform (Murao column 3, lines 25-30).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-9 and 11-14, 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chui et al. U.S. Patent No. 6,904,176 (hereinafter Chui) in view of Murao U.S. Patent No. 6,141,452 (hereinafter Murao).

Re claims 1, 9 and 11-12, Chui discloses or suggests, in column 6, lines 20-56, an image processing apparatus, comprising:

A size adjusting unit to, if an image is not evenly divisible into a number of fixed size regions that are equivalently sized, adjust the size of the image at a stage in an encoding process to form a size-adjusted image so that the size-adjusted image becomes evenly divisible into the regions; and an encoding unit to encode the size-adjusted image by the regions into a codestream.

Chui discloses processing logic divides each image of different resolution into a number fixed sized tiles. When the image cannot be divided evenly, padding by 0's may be necessary as shown in Fig. 2A wherein padding by 0's adjusts the size of the image. In Fig. 2A, an image at full resolution is divided into equal sized square tiles and because the last column of tiles are not square, zeros have been added onto the right edge of the image to enable the last column of tiles to be square. The fixed sized tiles are further labeled. The processing logic encodes each tile by encoding the (I, j)th tile of the lowest resolution using JPEG as shown in Fig. 3A. The JPEG encoder encodes the tile to create compressed bitstream to be sent to the decoder. The claim recites "size adjusted image", however, notwithstanding Chui's disclosure of adjusting the size of the original image, Chui also discloses compressing bitstream, thus adjusting the size of image at the stage of discrete consine transform.

Chui further discloses the image encoder module 3070 which include an encoder control program controlling the processing of compressing and encoding an image (See column 17, lines 5-15). Once all the tiles of an image have been transformed, compressed and encoded, the

resulting encoded image data is stored as an image file wherein the image file includes header data and a sequence of image data structures (See column 18, lines 15-20). The header of the image file includes the information needed to access the various image subfiles wherein the header stores a parameter value that indicates the number of image subfiles in the file and the size of each image data structure. Each image subfile has a header and a sequence of bitstreams wherein the header data of each base image subfile includes fields that indicate the size of the image subfile and the size of the tiles used to tile the image, the number of bitstreams encoded for the image for each tile of the image and the header information for each bitstream including the size of the bitstream (See column 18, lines 40-67 and column 19, lines 1-20).

Therefore, the encoded image as stored in the image file contains information related to the size of the tiles used to tile the image and the number of image subfiles leading to the size of the image. Chui is seen to disclose an image encoder unit or the compressing unit that performs the function of the information attaching unit to attach to the codestream (bitstream of the encoded image), the size of the tiles, the number of the image subfiles, the size of each image data structure and thus Chui discloses the claim limitation of "information related to the size of the image".

Chui thus further discloses an information attaching unit to attach, to the codestream, information related to the size of the image before the adjustment of size.

Although Chui is not clearly seen to teach the claim limitation of "if an image is not evenly divisible into a number of fixed size regions that are equivalently sized, adjust the size of the image", Murao demonstrates the claim limitation Fig. 7b and 7d, column 5, lines 15-25 and

column 6, lines 48-60, the image size adjusting unit adjusts size of the original image to the suitable size for a Wavelet transform.

Moreover, Chui discloses processing logic divides each image of different resolution into a number fixed sized tiles. When the image cannot be divided evenly, padding by 0's may be necessary as shown in Fig. 2A wherein padding by 0's adjusts the size of the image. In Fig. 2A, an image at full resolution is divided into equal sized square tiles and because the last column of tiles are not square, zeros have been added onto the right edge of the image to enable the last column of tiles to be square. **The fixed sized tiles are further labeled.** The processing logic encodes each tile by encoding the (I, j)th tile of the lowest resolution using JPEG as shown in Fig. 3A. The JPEG encoder encodes the tile to create compressed bitstream to be sent to the decoder. Thus, Chui at least suggests the claim limitation "if an image is not evenly divisible into a number of fixed size regions that are equivalently sized, adjust the size of the image" because padding by 0's to the image adjusts the size of the image.

It would have been obvious to have combined the teachings of Chui and Murao to adjust the size of the original image so that the image is evenly divisible into a number of fixed size tiles. Doing so would allow the efficient compressing and restoring of the images to reduce the computing time and the amount of memory needed using the Wavelet transform and inverse Wavelet transform (Murao column 3, lines 25-30).

Re claims 2, 13, Chui further discloses JPEG 2000 codestream or bitstream processed by the JPEG 2000 compliant decoder algorithm (e.g., column 7, lines 18-30).

Re Claims 3 and 14, Chui discloses processing logic divides each image of different resolution into a number fixed sized tiles. When the image cannot be divided evenly, padding by 0's may be necessary as shown in Fig. 2A wherein padding by 0's adjusts the size of the image. In Fig. 2A, an image at full resolution is divided into equal sized square tiles and because the last column of tiles are not square, zeros have been added onto the right edge of the image to enable the last column of tiles to be square. The fixed sized tiles are further labeled. The processing logic encodes each tile by encoding the (I, j)th tile of the lowest resolution using JPEG as shown in Fig. 3A. The JPEG encoder encodes the tile to create compressed bitstream to be sent to the decoder.

Re Claim 5, Chui discloses adjusting the size of the image at a stage between a component transform and a discrete wavelet transform (column 6, lines 44-63).

Re Claims 6-8, Chui discloses adjusting the size of the image to create a quantized DCT transformed image tile wherein the quantized DCT transferred image tile is entropy encoded to create compressed bitstream (column 6, lines 44-63).

Re Claims 16-19:

Chui discloses the regions being tiles (column 6, lines 21-43).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chui et al. U.S. Patent No. 6,904,176 (hereinafter Chui) in view of Murao U.S. Patent No. 6,141,452 (hereinafter Murao) and Satoh et al. U.S. Patent No. 6,895,120 (hereinafter Satoh).

Claim 10:

The claim 10 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of a decoding unit to decode a codestream encoded by the image processing apparatus set forth in the claim 1 into a size-adjusted image, and an inverse size adjustment unit to re-adjust the size of the size adjusted image at a stage in a decoding process to form an original image based on information related to the size of the original image attached to the codestream.

Although Chui is silent to the claim limitation set forth in the claim 10, Satoh discloses an image decoding apparatus, comprising:

A decoding unit to decode a codestream into a size-adjusted image (*Satoh discloses the new JPEG 2000 decoding standard which utilizes transforms and provides a new coding scheme and codestream definition for images in which each image may be divided into rectangular tiles and if there is more than one tile, the tiling of the image creates tile-components and an image may have multiple components and tile components can be extracted and decoded independently of each other; see column 1, line 55 to column 3, lines 7 and column 11, lines 33-65*);

An inverse size adjusting unit to re-adjust the size of the size-adjusted image at a stage in a decoding process to form an original image based on information related to the size of the original image attached to the codestream (*e.g., column 19, lines 19-36; column 26, lines 16 to column 27, line 33. Satoh discloses creating the bit stream compressed image data from these coding passes as grouped in layers contributing to a higher quality image and adding pixels of a predetermined pixel value to the image in the reconstruction of the original image. Satoh further discloses setting zero bitplanes and using extra bits to give more tag tree information in a tile component level partition in JPEG 2000 compliant decoder algorithm; e.g., column 2, 24 and*

29-30. Satoh further discloses the codestream relating to a tile, organized in packets, are arranged in one, or more, tile-parts and a tile-part header, comprised of a series of markers and marker segments or tags contains information about the various mechanisms and coding styles that are needed to locate, extract, decode and reconstruct every tile-component. Satoh discloses regouping layers and subbands coefficients and arithmetic coder uses contextual information from previously coded coefficients provided by the bit modeling block about the bit-plane compressed image data and its internal stage to decode a compressed bit stream; column 2).

Chui discloses the encoded image bitstream is received by the client and the client may decode the image bitstream using a decoder and display the image (See column 14, lines 38-67) and the client uses a decoder to decode the encoded image to create a 16 by 16 pixel image...the image 304 may be displayed based on the available display size wherein the image 304 is the size adjusted image. Chui further discloses a portable client device to locate any portion of the image, at any resolution level, without having to decode the contents of any other portions of the image file (See column 20, lines 1-5).

It would have been obvious to have combined the teachings of Satoh, Chui and Murao to reconstruct the original image from the size-adjusted image using the JPEG decoder so that the original image is reconstructed after the encoding and decoding process. This is because JPEG decoder allows for the decoding process to be performed without loss of information. Both Satoh and Chui discloses the JPEG decoding process (See Chui column 15, line 1 and Satoh column 2, 24 and 29-30). Therefore, having the combined teaching of the cited references, one of the ordinary skill in the art would have been motivated to do so to allow the reconstruction of every tile-component of the original image (Satoh *column 2*).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jcw Jin-Cheng Wang